SOUTH AUSTRALIA

ANNUAL REPORT

OF

THE CENTRAL BOARD OF HEALTH

FOR THE

YEAR ENDED 31st DECEMBER, 1949

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1950.

THE PUBLIC HEALTH

Annual Report of the Central Board of Health to the Minister of Health (Hon. A. Lyell McEwin, M.L.C.)

Sir—We have the honour to submit to you this annual report for the year ending 31st December, 1949. The report is arranged in the following sections :—

1. Administration and staff.
2. Legislation.
3. Vital statistics.
4. Infectious diseases.
5. Poliomyelitis epidemic.
6. Venereal diseases.
7. State X-ray health survey.
8. Food and drugs.
9. General sanitation.
10. Industrial hygiene.
11. Health education.
12. Outstanding features.

1. ADMINISTRATION AND STAFF.

Personnel of the Board.—The personnel of the board during the year was :—

Chairman—Albert Ray Southwood, M.D.

Members appointed by the Governor—

Edward Angas Johnson, M.D.

John Burton Cleland, M.D.

Member elected by metropolitan local boards—Arthur Roy Burnell, J.P.

Member elected by all other local boards—Frank Charles Lloyd, J.P.

Secretary—Hedley Thomas Hutchins.

The board was pleased at the award of the C.B.E. to Emeritus Professor Cleland in the New Year's Honours list.

In February the seats of the elected members of the board became vacant by effluxion of time. Messrs. Burnell and Lloyd were reappointed.

Staff.—The board is glad to record its appreciation of the continued devotion to duty of all members of the staff. Despite the expanding activities of the department and the extra duties consequently entailed, the work has continued to proceed smoothly. Mr. H. T. Hutchins, who had been acting secretary of the board since Mr. Stenning's retirement, was appointed Secretary of the Central Board of Health and Secretary of the Advisory Committee under the Food and Drugs Act, 1908-1949.

Dr. G. H. McQueen returned in February, 1949, from his studies in Europe, and resumed his duties as a medical officer on the staff of the Central Board of Health.

Dr. C. M. Deland was appointed to the staff as a temporary medical officer to do special work in connection with the epidemic of poliomyelitis.

Sister M. G. McManus resigned from the staff of the board and returned to England. Sister P. Crawford was appointed as temporary nurse inspector in her place.

Sister C. Newman and Misses H. J. Edwards and M. M. O'Connor were appointed to the X-ray staff. Miss L. K. Campbell resigned from this service for family reasons.

2. LEGISLATION.

Progress in Health Laws.—Public health legislation should be based on the latest knowledge that is available when the laws are made. Advances and new discoveries are continually being made in the medical and allied sciences, and many of the advances vitally affect the principles on which public health practice is based. The laws relating to public health should not remain static. From time to time it becomes necessary to add to or amend them to bring them into accordance with modern public health practice.

Health and Medical Services Act.—A most important addition to the legislation concerned with the public health of South Australia was made when toward the end of the 1949 session of Parliament the Advisory Council on Health and Medical Services was constituted by Act No. 66 of 1949. The council consists of the Director-General of Public Health (Dr. A. R. Southwood, chairman), Director-General of Medical Services (Dr. J. W. Rollison), Principal Medical Officer, Education Department (Dr. W. Christie), Superintendent of Mental Institutions (Dr. H. M. Birch), Dr. L. R. Mallen (nominated by the South Australian Branch, British Medical Association), Dr. Helen Mayo (a woman medical practitioner appointed by the Government) and the Director of Tuberculosis when appointed. The Minister of Health may refer to the council for investigation and report any question relating to health, hospitals, medical services, the

training and employment of any classes of persons whose work relates to the promotion of health or to the treatment of disease or abnormality of the human body, and any proposals for new legislation or any matter incidental to those subjects. The council for the purpose of conducting any investigation pursuant to the Act is invested with the powers of a Royal Commission. The Act also provides for the appointment of a Director of Tuberculosis.

Dangerous Drugs.—The Commonwealth Department of Civil Aviation following recommendations made by the International Civil Aviation Organization requires aircraft licensed to engage in public transport to carry a first aid kit for use in emergencies following a crash or a forced landing. The regulations under the Dangerous Drugs Act, 1934, were amended in order that a supply of certain specified dangerous drugs may legally be carried in such kits.

Food and Drugs.—In September, 1949, some additional regulations were promulgated. They relate to poultry killed or dressed for sale in the metropolitan area for human consumption and apply to premises on which 20 or more head of poultry are killed or dressed in any one week. Poultry for sale is now required to be branded. The regulations set out the requirements regarding structural conditions and the conduct of the business. Cleaning of utensils is also dealt with ; a local authority is now empowered to require the installation of approved mechanical glass washing apparatus for cleansing drinking glasses at hotel or milk bars or similar places where deemed necessary.

The use of salicylic acid will not be permitted after September, 1950, as a preservative in fruit juice cordials and syrups, raspberry vinegar, flavoured cordials and syrups, imitation cordials and syrups and concentrated imitation cordials, fruit juices or fruit extracts or concentrated fruit juices or concentrated fruit extracts, imitation fruit flavours or imitation fruit essences or imitation fruit extracts, crushed fruit, fruit squash, fruit squash cordial or fruit squash drinks and summer temperance drinks. Its use is still permitted, on trade representation, in non-excisable fermented drinks though this is subject to review at a later date.

The standard for jams and conserves was found to be defective in preventing the use of unsound fruit. The standard was amended to overcome this difficulty.

3. VITAL STATISTICS.

The information in this section has been supplied by the Government Statist. The assistance received on numerous occasions from the Government Statist and members of his staff has been greatly appreciated.

The following particulars for 1949 are subject to slight revision. Particulars for 1948 are in parentheses.

Population.—The estimated mean population for 1949 was 673,069 (658,000).

Births.—Registrations numbered 16,042 (15,870). The number of births registered fell irregularly from 12,904 in 1914 to 11,492 in 1927, from which year there was an almost continuous fall to 8,270 in 1935, but from 1935 there was an increase each year to 16,317 in 1947. The total for 1947 was a record and showed an increase of 8,047 on 1935, and of 3,413 on 1914. The registrations for 1948 and 1949 were lower, with totals of 15,870 and 16,042 respectively. The 1947 birth rate per 1,000 of mean population was 25·25 and was the highest since 1917. The 1948 and 1949 rates were 24·11 and 23·84.

The particulars quoted above are for registrations during the year. Since 1947 particulars of births actually occurring during the year have been extracted, the total for 1947 being 16,196 and for 1948, 16,088, as compared with registrations 16,317 and 15,870. The number of actual births for 1949 was 16,198.

Deaths.—6,373 (6,748) were registered during the year, a decrease of 375 on the previous year. The 1948 figure was the highest number registered for any one year, but the rate of 10·25 per 1,000 of mean population had been exceeded in several previous years. Commencing from 1921 there had been a general, though irregular, fall in the death rate until 1933 when the rate of 8·44 was the lowest on record. From that year there had been an irregular rise to the rate of 11·02 in 1942 since when the rates have been lower, the 1949 rate being 9·47.

Causes of Deaths.—The principal causes of death in the general population of the State are shown in the following table. The rates shown are those per 10,000 of the mean population.

THE MAIN CAUSES OF DEATH IN SOUTH AUSTRALIA IN RECENT YEARS.

Disease.	Persons.			Rates.		
	1947.	1948.	1949.	1947.	1948.	1949.
Diseases of the heart	1,847	2,038	1,971	28·59	30·97	29·24
Cancer and other malignant tumours	827	942	838	12·80	14·32	12·43
Tuberculosis (all forms)	196	186	142	3·03	2·83	2·11
Cerebral haemorrhage, softening, etc.	713	825	820	11·04	12·54	12·16
Pneumonia, lobar-, broncho-, etc.	251	262	274	3·89	3·98	4·07
Bronchitis (all forms)	45	57	48	0·70	0·87	0·71
Other diseases of respiratory system	118	125	95	1·83	1·90	1·41
Nephritis—Acute and chronic	189	193	196	2·92	2·93	2·91
Diabetes mellitus	130	141	137	2·01	2·14	2·03
Puerperal causes	27	22	21	0·42	0·33	0·31
Congenital debility, malformations, etc.	324	314	289	5·01	4·77	4·29
Senility	256	244	217	3·96	3·71	3·22
Suicides	55	43	64	0·85	0·65	0·95
Violent deaths (except suicides)	297	339	375	4·60	5·15	5·56
Diarrhoea and enteritis	27	81	52	0·42	1·23	0·77
Whooping cough	—	8	19	—	0·12	0·28
Diphtheria and croup	5	5	1	0·08	0·08	0·02
Influenza	5	11	6	0·08	0·17	0·09
Typhoid fever	1	—	1	0·02	—	0·02
Appendicitis	33	18	17	0·51	0·27	0·25
Hernia, intestinal obstruction	34	51	44	0·53	0·78	0·65
Cirrhosis of liver	35	27	37	0·54	0·41	0·55
Tetanus	3	5	4	0·05	0·08	0·06
All other	797	811	705	12·33	12·32	10·46
Totals	6,215	6,748	6,373	96·21	102·55	94·55

Infantile Mortality.—The deaths of children under 1 year totalled 444, a decrease of 26 on the total of 472 for 1948. The infantile death rate represents the number of deaths of children under 1 year per 1,000 births. During the last 70 years there has been a remarkable drop in the infantile death rate—from a rate of 150 per 1,000 births in the period 1870-1880 to a rate of less than 30 in recent years. Usually New Zealand has the world's lowest infantile death rate with South Australia often second and twice lowest (in 1938 and 1947). The 1947 rate for this State was 24·27. The 1949 rate was 27·68. In 1948 the New Zealand rate reached the record low of 21·95. The South Australian rates during recent years have been less than half the rates of 25 years previously.

Principal causes of infantile deaths during 1949 (1948 in parentheses) were :—Diarrhoea, etc., 32 (64) ; congenital malformations, 56 (65) ; premature birth, 137 (139) ; congenital debility, 3 (5) ; injury at birth, 43 (54) ; other diseases peculiar to early infancy, 43 (42) ; cerebro-spinal meningitis, 1 (1) ; meningitis, 4 (5) ; whooping cough, 16 (5) ; measles, 2 (4) ; convulsions, 2 (1) ; bronchitis, 2 (3) ; pneumonia, 51 (34) ; hernia, etc., 3 (4) ; diseases of the ear, etc, 2 (6) ; and all other causes, 47 (40). No infantile deaths from diphtheria were recorded.

There were 111 (123) deaths of children under 1 day, 185 (183) of children from 1 day to 1 month, and 148 (166) of those from 1 month but under 1 year. Although the figures vary from year to year, the greatest improvement compared with earlier years has been in respect to deaths of children from 1 month to 1 year old.

Still Births.—These are not included in either births or deaths, and numbered 374 in 1948, the total for 1949 was 338.

Marriages.—6,247 (6,704), a decrease of 457. The number of marriages had been just over 4,500 in 1926 and 1927, but fell to 3,069 in the depression year of 1931, from which the number increased yearly and reached 6,950 in 1940. The figures from 1941 to 1949 have been uniformly high, though varying from 5,321 to 8,129. The mean marriage age has varied by only decimal points since first calculated in 1908.

In 1931 when there were only 3,069 marriages the mean age for males was 28·67 and for females 25·14 ; in 1942 when there were 8,129 marriages the mean was 28·65 and for females 25·63. For 1948 the male mean was 28·87 and female 25·70. For 1949 means are not yet available.

Summary Return.—The following return shows the number of births, deaths and marriages and the rate per 1,000 of mean population and the number of infantile deaths and the rate per 1,000 births.

Period.	Births.		Marriages.		Deaths.			
					Total.		Infants.	
Mean.	No.	Rate (*a*).	No.	Rate (*a*).	No.	Rate (*a*).	No.	Rate (*b*).
1920-24	11,857	23·43	4,326	8·55	4,901	9·68	693	58·45
1925-29	11,301	20,16	4,225	7·54	5,034	8·98	526	46·54
1930-34	8,989	15·54	3,660	6·33	5,001	8·65	342	38·05
1935-39	9,039	15·32	5,305	8·99	5,430	9·20	297	32·85
1940-44	11,743	19·30	6,843	11·25	6,235	10·25	406	34·57
1945-49	15,613	24·09	6,328	9·77	6,369	9·83	427	27·35
Year.								
1945.....	14,033	22·37	5,321	8·48	6,049	9·64	394	28·08
1946.....	15,813	24·89	6,700	10·55	6,461	10·17	428	27·07
1947.....	16,317	25·25	6,668	10·32	6,215	9·62	396	24·27
1948.....	15,870	24·11	6,704	10·18	6,748	10·25	472	29·74
1949.....	16,042	23·84	6,247	9·28	6,373	9·47	444	27·68

(*a*) Per 1,000 of mean population. (*b*) Per 1,000 births.

4. INFECTIOUS DISEASES.

Statistics.—The total numbers of notifiable infectious diseases and the number of cases of tuberculosis reported to the Central Board of Health for the years 1947, 1948, and 1949, are given in the following table. The number of deaths from these diseases is also given.

Disease.	Cases.			Deaths.		
	1947.	1948.	1949.	1947.	1948.	1949.
Anthrax	1	—	—	1	—	—
Cerebro-spinal meningitis	17	14	16	4	4	—
Diphtheria	93	79	38	4	5	1
Dysentery, amoebic	2	1	2	1	—	1
Dysentery, bacillary	14	2	3	4	1	2
Encephalitis lethargica.....	—	1	—	—	2	—
Endemic typhus fever	3	11	6	—	—	—
Erysipelas.....	68	55	69	1	1	—
Influenza	9	7	4	5	11	3
Leprosy.....	—	—	1	—	—	—
Measles	724	9,441	5,677	2	7	6
Paratyphoid fever	—	2	2	—	—	1
Poliomyelitis anterior acuta	55	89	582	3	16	20
Psittacosis	—	—	2	—	—	1
Puerperal pyrexia	36	46	26	—	—	—
Scarlet fever.....	428	254	372	1	—	—
Tuberculosis, pulmonary	202	279	251	159	154	124
Tuberculosis, other forms	14	18	18	23	13	20
Typhoid fever	2	2	7	1	—	1
Undulant fever	1	1	2	—	—	—
Whooping cough	17	1,135	1,548	—	6	20

Diphtheria.—There has been a gradual decrease in incidence.

Poliomyelitis.—A detailed account of the epidemic of 1949 is the subject of section 5 of this report.

Tuberculosis.—The number of cases of pulmonary tuberculosis reported during 1949 is less than in 1948, but it is still more than in 1947. The number of deaths from pulmonary tuberculosis continues to decrease steadily each year. The death rate from pulmonary tuberculosis in 1949 was 18·4 per hundred thousand of the mean population.

Typhoid.—A small outbreak of four cases of typhoid occurred during the year at Hawker. These were treated with the new antibiotic drug chloromycetin by Dr. D. W. Shepherd. All quickly recovered. The serum of the first patient agglutinated E. typhi " H " to a titre of 1 in 2,500, the second patient 1 in 50, the third 1 in 125, and the fourth 1 in 50. The outbreak was investigated by Dr. Shepherd who is also the local officer of health. The source of infection was not found. Two other cases originated in Waikerie, but no source of infection was found on investigation by the local officer of health.

Leprosy.—One case of leprosy was reported early in the year. The subject had lived for many years in the Northern Territory and apparently acquired the disease there. The diagnosis was made on the clinical findings ; a number of bacteriological investigations failed to show any leprosy bacilli. The patient was regarded as non-infectious and he was discharged from hospital under medical surveillance. Later in the year he was subsequently admitted to hospital with an acute exacerbation of the disease and leprosy bacilli were found in smears from his nose and in a section of one of his nerves. The disease was most probably contracted in the Northern Territory.

Progress in Immunization.—Diphtheria immunization has now come to be so firmly established as to warrant little comment. Many country local boards, in addition to those in the metropolitan area, are conducting regular monthly clinics. Information received from local boards of health shows that as in recent years the majority of children treated were under two years of age. The approximate number of children treated in 1949 is 4,487.

Increased use is being made of whooping cough vaccine in the attempt to prevent that infection, especially in young children. During this year the Commonwealth and State Governments made available whooping cough vaccine free of charge to local boards and approved institutions. Previously only one or two local boards had carried out any immunization against whooping cough. Approximately 3,396 children received injections during the year, the average age being 3·1 years.

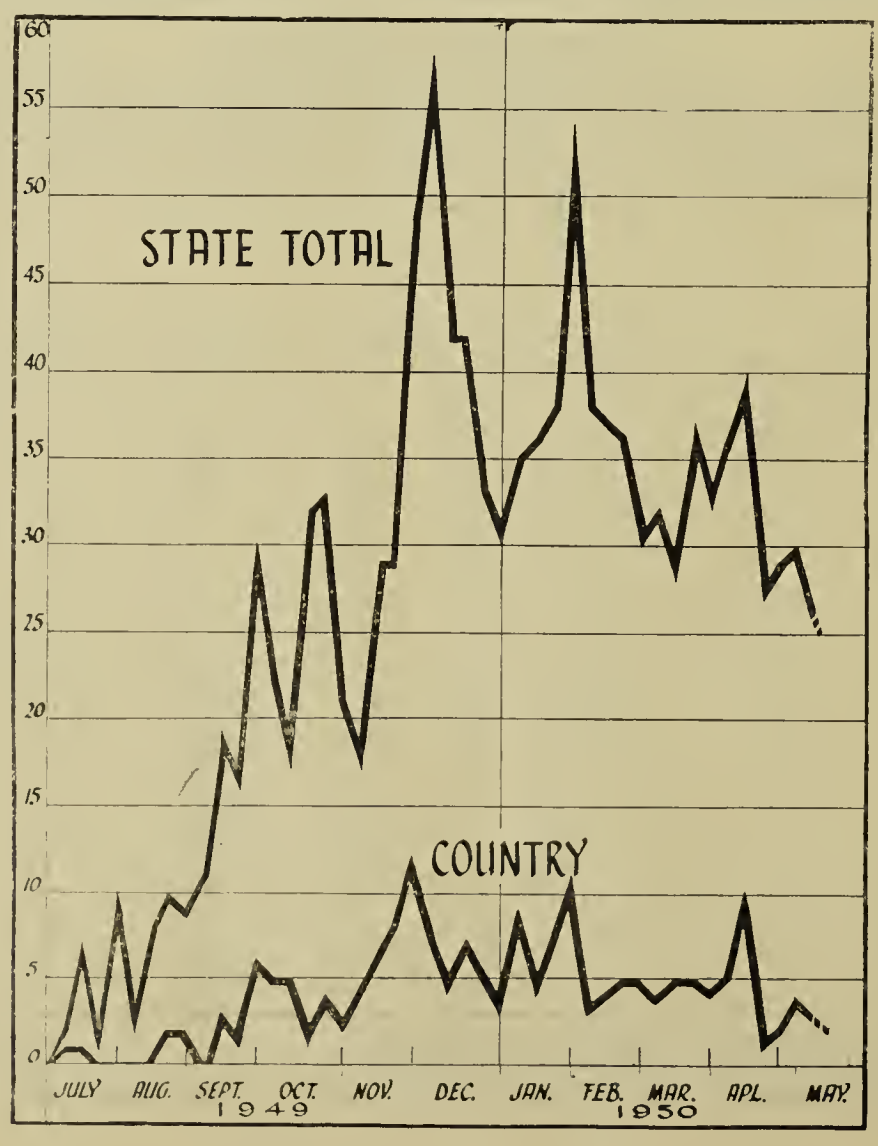
Inquiries showed that in nearly every case the number and amounts of injections and the interval between injections were as recommended by the Commonwealth Serum Laboratories. Medical officers, in reply to a questionnaire, reported some degree of local and general reaction in practically every case following injections. In most of the reports received the desire to have a combined diphtheria and whooping cough prophylactic injection was stressed.

Immunization of children against diphtheria and whooping cough was carried out at Yunta, Mannahill, Olary and Cockburn by officers of the Central Board of Health. Matters relating to public health in these towns are the responsibility of the Central Board of Health. They were visited on four occasions during the year and a total of 259 injections of pertussis vaccine and 174 injections of diphtheria prophylactic were given. Altogether 105 persons were treated. Of these 48 children were immunized against diphtheria, 16 children were given " booster " injections of diphtheria prophylactic, 62 children were immunized against whooping cough, and three adults and one child were vaccinated against smallpox.

5. POLIOMYELITIS EPIDEMIC.

Incidence.—A record outbreak of poliomyelitis gave trouble in 1949. It began in South Australia early in July, 1949. There had been two cases in May and it may be that these were the sparks that started the fire.

The epidemic has been the most extensive in the history of the disease in Australia. The peak number of cases per week was at the end of November when the figure reached 55. Up to that time, the number had fairly steadily increased week by week. The graph kindly lent by *The Advertiser* shows the rising incidence.



The history of previous outbreaks in South Australia will be found in the board's report for 1948. Previous outbreaks have commenced in late spring and this was thought to be the rule. The present one began in the depth of winter, but the winter was comparatively warm and very dry. Water restrictions were only obviated by heavy October rain. However, no proof has been adduced that weather conditions have anything to do with the spread of the disease. In the last two years, epidemics much worse than this outbreak have occurred in such extreme climates as those of Labrador and the Nicobar Islands.

During the last few years poliomyelitis has excited world-wide interest. There have been epidemics in many civilized countries comparable with the one here. There have also been concentrated outbreaks in isolated communities which have been individually and proportionately much worse than any large outbreak.

Patients and Contacts.—It is the practice to admit most patients to the infectious disease wards of the Royal Adelaide Hospital at Northfield as soon as the doctor who has seen them makes the tentative diagnosis of poliomyelitis. The usual provision for isolation of patients and contacts of an infectious disease are applied. Only a very small minority of patients have for some valid reason been kept at home. The other occupants of the house under 14 years are isolated and kept from school for 14 days, but those over 14 years are not restricted. This rule can be varied by the local boards of health.

The patients admitted are placed in infectious diseases wards. The hospital medical staff carry out the usual investigations, including the examination of cerebro-spinal fluids. Patients do not receive specific treatment, there being none of value. Such emergency treatment as tracheotomy or the use of a respirator can be promptly applied if the need arises.

Towards the end of the three weeks' isolation period, the muscle functions are checked in detail by physiotherapists. Adults who have remaining paralysis are retained for treatment in the convalescent wards. Milder cases are sent home and receive after-treatment as out-patients at the Royal Adelaide Hospital, unless they wish to go to the care of private doctors. Children are referred to the Adelaide Children's Hospital. There they are checked. Many become out-patients, but the more severe ones are retained for after-treatment as in-patients. A few with permanent paralysis go on to the Somerton Crippled Children's Home.

The epidemic has stretched the resources of all these institutions to their utmost. But breaking point has never been quite reached and at no time have patients had to miss treatment or receive inadequate care. The after-treatment of the disease is continuously developing in scope and method, and very seldom now are the hopeless words heard " no further improvement likely."

A characteristic of this epidemic has been that many patients who return home with mild or no paralysis suffer for a long period from a form of generalized weakness. Though they feel perfectly well, they tire easily and quickly and have little reserve strength. Children cannot manage a full school day. Most difficult cases are those of mothers who have had the disease and have a home and family and no help. Action is being taken to help with this problem.

Poliomyelitis Advisory Committee.—This committee was established during the 1937 outbreak. Its sittings were revived as soon as the present one became established and have continued fortnightly since August, 1949. It discusses all aspects of the disease and advises the Minister who, when necessary, makes its recommendations public. The committee is often asked for advice by individuals and organizations and it performs a most useful function by discussing such problems and adding the concerted weight of its opinion to the advice given. The members are Dr. Helen Mayo, Dr. J. W. Rollison and Dr. W. Christie (members of the Advisory Committee on Health and Medical Services), Dr. I. B. Jose (representing the University), Dr. E. Britten Jones (British Medical Association), Dr. E. F. West (Crippled Children's Association), Dr. Neville Wilson (Adelaide Children's Hospital), Dr. Howard Linn (Superintendent, Northfield Wards), Dr. J. M. Dwyer (Royal Adelaide Hospital), and Dr. A. R. Southwood (Chairman).

At intervals the committee has issued statements for publication covering precautions it thinks should be taken to minimize the spread of the disease. At the first of the present meetings the following advice was promulgated :—

The committee considers that the following points are relevant in attempting to limit the spread of infection :

(*a*) Early diagnosis and medical care of patients are important. It is advised that any persons ill with feverishness, headache, stiffness of neck and backache should rest in bed pending diagnosis.

(*b*) Crowding of children in rooms, halls or other enclosed places is undesirable.

(*c*) Operations for removal of tonsils and adenoids, or for extraction of teeth, should be postponed, unless urgently required.

(*d*) General hygienic measures such as control of flies, boiling of milk, washing of fruit eaten uncooked, and attention to all aspects of personal cleanliness are desirable.

(*e*) Unnecessary travel and visiting may be the means of spreading infection. So far there have been only a few cases reported from country districts. In general, people are to " stay put " and to continue with their ordinary day-to-day duties.

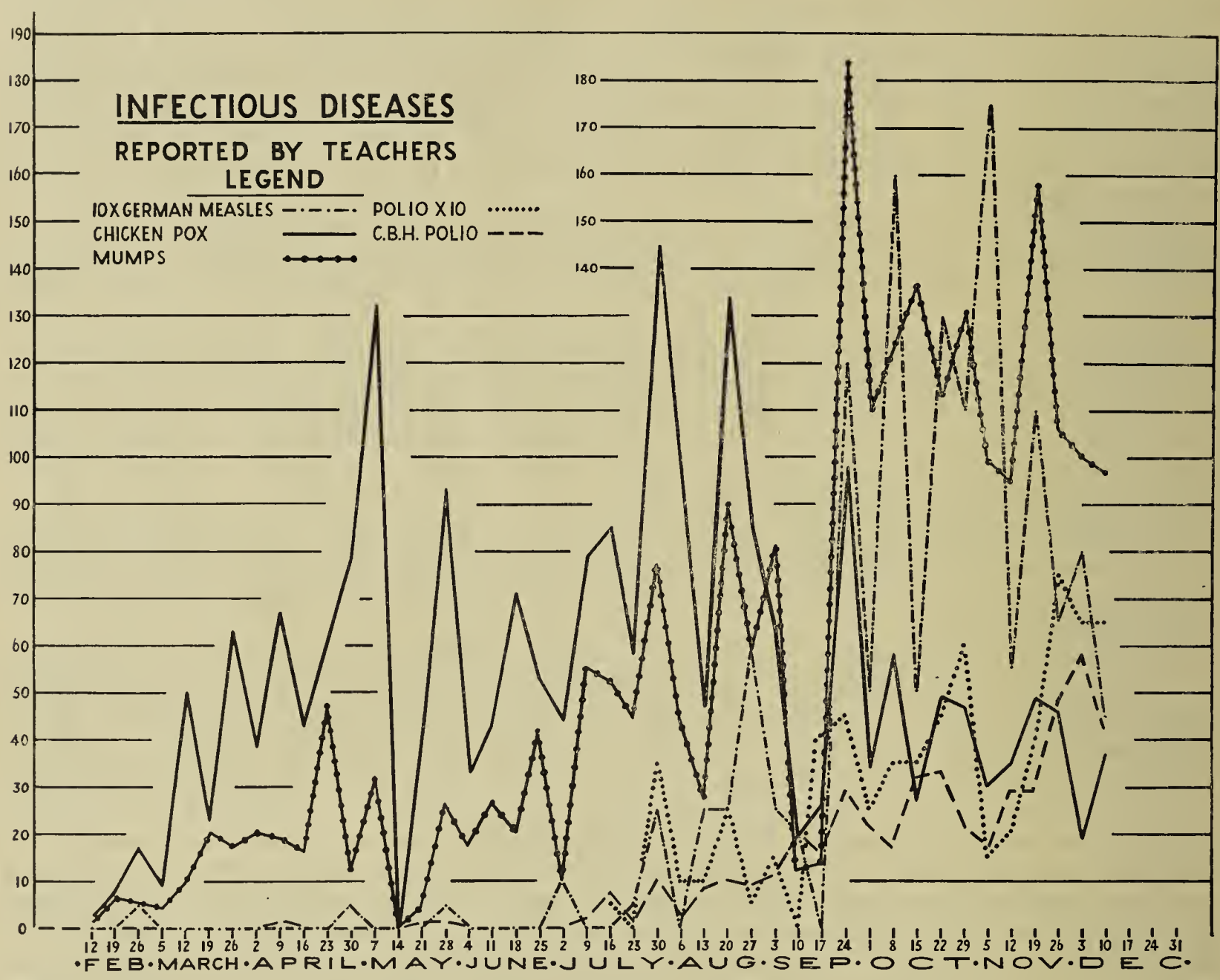
(*f*) Undue physical strain and fatigue, especially in children and young adults, or in a case of known exposure to infection, may increase the likelihood of infection and of chronic damage.

Some Observations of the Epidemic.—In the course of inquiries a number of interesting trends have been noted. The outbreak is still continuing and so are the inquiries, so that exact statistical analysis of the facts may be some time in emerging.

The death rate is comparatively low. This seems to be absolutely so. But a very large number of mild cases are being diagnosed in the community and the doctors are highly " polio-conscious." There have been few cases of the so-called " bulbar " type, a frequent cause of death in other outbreaks. Most of the deaths have been from the ascending type of paralysis involving respiratory muscles. The modern respirator saves many of these cases, but some are beyond its help. The advisory committee has consistently advised against the operation of tonsillectomy during a poliomyelitis outbreak, and it is thought this may have contributed to the low incidence of severe bulbar cases.

There has been a high incidence of multiple cases in a family. This is a new feature and it is contrary to experiences in other parts of the world. Not only have two or more children in a number of families been affected, but in many families one parent has also taken the illness. In others, blood relations outside the immediate family have been affected in this and previous outbreaks ; in a few this susceptibility (as it may be) can be traced back three, and in one instance, even four generations. In a number of these families there has been no direct contact between the different branches.

Certain figures were obtained from the Education Department and a curious parallel found between the week-by-week incidence of poliomyelitis and other virus diseases, mumps, chickenpox and rubella. The significance of this observation is not apparent.



The period of this report ends with the epidemic at its height. Any conclusions drawn at this time can be impressions only. A review of the epidemic as a whole will appear in the board's next report.

6. VENEREAL DISEASES.

During the current year the number of suspected sources of venereal infections which it was considered reasonable to trace was only eight. Of these five were identified and ultimately brought under control. For most of the year few cases of venereal infection were being seen at the Royal Adelaide Hospital and it was reasonable to assume that South Australia was remarkably free from the disease.

Towards the end of the year, however, there was an increase in the number of male cases reporting for treatment. It was ascertained that the men were contracting their infections from a small number of professional prostitutes residing in the metropolitan area. The women are mostly married and belong to the middle-aged group. As they know they are breaking the law, they are naturally diffident about co-operating with either the police or health departments. They have always presented a difficult problem, but a number were induced to visit the Royal Adelaide Hospital Female Investigation Clinic. Complete investigations showed that they all were suffering from some form of venereal infection, though not all at the time in an infectious state. In spite of every consideration, it is difficult to induce the women to report for regular examinations at the female investigation clinic. Sometimes they can be induced to visit private doctors, but as they generally do not give an accurate history and often use vaginal douches before making a visit, fallacies occur. It is most important that doctors issuing certificates as to these women's state of health conduct a most meticulous examination before committing any statement to paper. The results of bacteriological and serological tests should be annotated.

Women of this type constitute quite a different problem from that caused by promiscuous young girls who were responsible for spreading venereal diseases during and immediately following the war. The latter are seldom heard of now. It seems at present that considerable amounts of money can be readily obtained by the small number of prostitutes operating, hence one of the difficulties in curbing their activities.

The minor recrudescence of venereal diseases in this State is based primarily on professional prostitution, a matter which is dealt with by the Police Department. But the police have been actively engaged in combating it, and at the time of writing the number of new infections amongst males is lessening.

7. STATE X-RAY HEALTH SURVEY.

Work in the Country Districts.—During the year the X-ray unit has operated in the following country districts. The attendance figures and results are annotated :—

	Population.	No. of Small Films Taken.	No. of Large Films Taken.	Percentage of Population Surveyed.	No. of Cases Referred to Doctor (? T.B.).	No. of Cases Referred to Doctor (other Causes).
Riverton	1,628	748	43	46	9	3
Adjacent areas	—	567	26	—	4	6
Clare	1,454	962	25	66	12	3
Adjacent areas	—	1,042	24	—	5	4
Kapunda	1,236	622	19	49	4	4
Adjacent areas	—	1,024	31	—	7	3
Waikeric	2,626	1,102	26	42	10	2
Adjacent areas	—	120	5	—	2	—
Barmera	2,644	952	52	36	9	3
Adjacent areas	—	122	4	—	—	—
Berri	3,762	1,640	54	43	6	8
Adjacent areas	—	95	3	—	1	1
Renmark	4,832	2,678	124	55	26	21
Adjacent areas	—	206	10	—	2	2
Wallaroo	2,140	791	28	37	6	1
Adjacent areas	—	1,447	67	—	10	6
Balaklava	2,067	1,049	41	51	4	4
Adjacent areas	—	587	20	—	6	2
Loxton	3,270	1,526	62	47	9	8
Adjacent areas	—	211	15	—	3	3

An analysis of some recent figures of the undertaking when 14,000 persons had been X-rayed and where necessary, further investigated, showed that 0·5 per 1,CC0 had previously undiscovered active pulmonary tuberculosis. About 1 per cent of the total number of persons X-rayed showed previously undiscovered healed lesions. These figures correspond with. findings in similar surveys conducted elsewhere.

Second X-ray Unit.—A second unit was purchased by the Government for the purpose of covering some of the Government institutions, major industries and Adelaide suburbs. It commenced its work at the Parkside Mental Hospital in November, 1949. The unit was subsequently moved to Northfield Mental Hospital. As well as the patients, a number of the staff were X-rayed. The following table shows the results obtained :—

	Small Films.	Large Films.	No. of Cases Referred to Doctor (? T.B.).	No. of Cases Referred to Doctor (Other Causes).
Parkside Mental Hospital	1,466	150	65	6
Northfield Mental Hospital	751	75	29	13

The work of the State X-ray Health Survey for the period April, 1948, to December, 1949, may be summarized :—

SUMMARY OF RESULTS.

Age Group.	Examined.			Cases for Investigation.		
	Males.	Females.	Total.	Males.	Females.	Total.
0–4	97	79	176	—	—	—
5–9	2,118	2,028	4,146	2	4	6
10–14	2,371	2,327	4,698	6	4	10
15–19	1,660	1,731	3,391	2	3	5
20–24	1,511	1,524	3,035	5	11	16
25–29	1,408	1,586	2,994	10	14	24
30–34	1,578	1,576	3,154	15	16	31
35–39	1,556	1,589	3,145	20	14	34
40–44	1,340	1,167	2,507	21	23	44
45–49	1,054	865	1,919	32	17	49
50–54	774	667	1,441	26	19	45
55–59	598	502	1,100	19	18	37
60–64	441	328	769	22	12	34
65 and over	432	369	801	26	20	46
Not stated	17	5	22	—	—	—
Total	16,955	16,343	33,298	206	175	381

It will be noted from the first set of tables that the investigations of some patients have not been concluded. There are two main reasons which account for this fact :—

(1) Tuberculosis, particulary in its carly stages, is difficult to diagnose. An X-ray film unsupported by clinical and bacteriological examination and tuberculin testing is not regarded as final evidence of tuberculosis. Patients are often referred for another X-ray following an interval of six months. The onus placed upon a doctor of telling a person he is, or is not, suffering from tuberculosis is considerable. Consequently there may be a long interval before a final diagnosis can be made.

(2) X-ray examination is not compulsory. People can only be persuaded to attend. There are many vagaries in personal behaviour over which the authorities have no control. People sometimes report for a small film and do not return for a large one when requested. Others do not nominate a doctor to undertake subsequent neccssary investigations. The Nurse Inspector of the Central Board of Health and the Sister attached to the X-ray units have both been employed in work of a " follow-up " nature. It has been suggested that in cases which have been dealt with by the units and where investigations are needed, doctors to whom cases have been referred might find it convenient to make greater use of the Chest Clinic at the Royal Adelaide Hospital.

Publicity for the X-ray Survey.—To encourage the public to make use of the X-ray service, publicity work was carried out by an officer of this board, in the majority of towns visited by the unit. New publicity material now used for this purpose include a striking four-colour poster designed by a leading Adelaide artist, large (12ft. x 3ft.) calico streamers, and a new pamphlet prepared by an advertising agency.

In most cases persons approached regarding the display of X-ray survey publicity have been very co-operative. Streamers have been erected on main buildings, posters displayed to advantage in the streets and " stickers " shown in shop windows. During publicity campaigns, local organizations such as Red Cross, C.W.A., sporting bodies, progress associations and the like have been asked to assist in spreading news of the X-ray unit, with good results. In one town, where the institute committee controls the moving picture theatre, a show was stopped whilst an officer of this board gave a brief address on the work of the unit. The managers of industries in the various towns were approached and in many cases employees in those industries were given time off to have an X-ray examination done.

The following is the text of a new circular letter given to each adult after being X-rayed :—

You will receive the results of your X-ray in a few days' time, posted personally to you in a sealed envelope at your home address.

You are to be congratulated on having your chest X-rayed, thus showing that you are health-conscious, and are willing to do your part to rid our country of tuberculosis.

Because you have shown your interest in the work of the X-ray unit in such a practical way, we now ask if you will try to induce as many others as possible to do likewise.

Will you please discuss the work of the X-ray unit among your friends and relatives ? It is especially important for every adult to have a chest X-ray if we are to conquer tuberculosis. Your further help in this way will be greatly appreciated.

The wording of the letter has the same friendly, personal touch which marks the whole work of the survey, and it is believed to be of value in obtaining increased attendances.

The X-ray unit throws much additional work on the staffs of local boards of health in making the necessary appointments and other general matters, such as arranging for electric power, telephone and hire of a suitable hall. The Central Board appreciates the co-operation of local boards and their officers in this important work.

8. FOOD AND DRUGS.

Food Standards.—In the metropolitan area, the Metropolitan County Board is the local authority administering the Food and Drugs Act, and the regulations made under that Act. In other local government areas the local boards of health administer the Act. The Central Board of Health has concurrent jurisdiction with local authorities and acts in a supervisory and advisory capacity.

The following table shows the number of samples of various food and drugs submitted through the Central Board of Health for analysis during the year :—

	No. of Samples Submitted.	No. which Did Not Conform to Standard.
Aerated drinks	17	4
Apples	1	—
Biscuits	1	—
Black currant juice	1	—
Bread (various)	44	18
Breakfast cereals	6	—
Butter	9	2
Cake mixtures	1	—
Chococlates	21	—
Cream	14	—
Cream substitutes	5	—
Diamorphine tablets	4	—

	No. of Samples Submitted.	No. which Did Not Conform to Standard.
Dried fruits	13	1
Dripping	1	—
Dust	1	—
Ether	1	1
Fish (tinned)	4	1
Flour (wholemeal)	9	9
Flour (S.R.)	3	2
Gelatine	2	—
Ice cream	6	—
Icing sugar	1	1
Jams	1	—
Jelly crystals	7	—
Meat	1	—
Meat—Sausage and mince	45	10
Milk	1,049	80
Pastry mixtures	14	—
Peas (tinned)	5	—

The board would like to see more of the country local boards submitting samples for analysis, particularly of food produced locally, such as milk.

Bakehouses.—Throughout the year continued good progress has been made in bringing bakehouses in the various parts of the State into conformity with the structural requirements of the regulations under the Bakehouses Registration Act, 1945-1947. Shortages of materials and labour have, in some instances, prevented as much progress as desired. The board is appreciative of the efforts of bakers and local authorities generally to improve the conditions under which such an important food is prepared.

Wrapping of Bread.—From time to time the matter has been raised—particularly in country areas—of the compulsory wrapping of bread. In cases where bread is wrapped the Food and Drugs Regulations require that only new, clean, white or brown paper shall be used. The regulations also require that any food other than fruit or vegetable, which is ordinarily consumed in the condition or form in which it is produced, shall (until it is delivered to the purchaser) be protected from dust, flies or other insects, or any unwholesome matter. Both the Central Board of Health and the Advisory Committee appointed under the Food and Drugs Act consider that, though it is desirable in some ways that bread should be wrapped, the various difficulties do not make it practicable as a compulsory measure. To avoid the handling of bread the ideal would be to wrap the bread by mechanical means when freshly baked. The difficulty is that bread cannot be satisfactorily wrapped until it is thoroughly cooled. In the past, recurring shortages of new, clean, white or brown paper have presented difficulties. The use of newspaper for the purpose is undesirable, and is not permitted. The wrapping of bread sold over the counter would appear convenient for the purchaser. However, any hygienic value in the wrapping of bread from retail shops would be offset by the fact that the bread would have been previously handled and would again be handled in the wrapping by the shopkeeper.

Bread manufacturers of South Australia are thought to have no objection to the compulsory wrapping of bread, provided the price for wrapping is considered and an additional charge permitted, and provided that a continued supply of wrapping paper is guaranteed. In response to further requests from some areas during 1949 for powers to make the wrapping of bread compulsory, Parliament enacted an amendment to the Bread Act. This enables a municipal or district council to make by-laws relating to the compulsory wrapping of bread by sellers.

Abattoirs in Rural Areas.—The inspection of meat in country areas has always been desirable, but in the past has been generally impracticable. In the majority of country areas, meat is slaughtered in many small, widely-scattered slaughterhouses, where, because of the small amount of slaughtering the services of a qualified meat inspector could not be justified. Some of these slaughterhouses are in out-of-way places and proper supervision is often difficult.

The logical solution to the problem is the establishment of large abattoirs at various central localities, where warranted by the population of the area. At such central abattoirs, sufficient animals would be killed to justify the full-time employment of a qualified meat inspector. Besides inspecting meat, he would control the general standard of cleanliness and the reclaiming of by-products in an inoffensive manner.

The Central Board of Health has long recognized the need for better slaughtering facilities in the country. In the past, the depression, the war and now the shortage of materials and manpower have all hindered abattoirs establishment.

At Port Pirie, however, progress has been made and the municipality of the town of Port Pirie has been declared to be an abattoirs area within the meaning of the Abattoirs Act, 1911-1947. An abattoirs board has been appointed, and all meat entering Port Pirie will be killed at an abattoir. The £52,000 estimated to be necessary to establish this abattoir has been borrowed by the abattoirs board from the Savings Bank of South Australia. In support of a proposal to establish a similar abattoir in the Upper Murray Valley area, the Chairman and officers of the Central Board of Health attended a meeting of the Upper Murray District Council Association in August. As a result of that conference, investigations are now proceeding into the practicability of establishing a modern abattoir to serve Renmark, Lyrup, Berri, Barmera and Loxton.

Transport of Meat.—During their visits in country centres, inspectors of the Central Board of Health, have noted instances where the vehicles and methods used in conveying meat from slaughterhouses to butcher shops are unsatisfactory, and that meat is not adequately protected from contamination in transit.

To obtain some uniformity of structure, and generally to improve the standard of this class of vehicle, the Central Board issued a memorandum to local boards of health. It is recommended the local boards should require an angle iron frame with a lining of heavy metal to be provided as a minimum for vehicles used. The lining should be made of stainless steel, tinned steel or other suitable metal of heavy gauge. The frame and lining should be made so as to fit loosely on the tray of a suitable vehicle and be capable of being easily removed and cleaned. A canvas canopy should be provided with thimble eyelets which can be fastened with a sash cord tightly over the sides of the tray in such a manner that the meat is protected from contamination by flies and dust. The canvas canopy should be so fitted that it does not touch the meat.

Further, whenever practicable, a separate vehicle should be provided for the purpose. It should not be used for any other purpose, and should be so constructed and of such material as to be easily cleaned and kept clean.

Slaughtering During Emergency.—In March, during the industrial trouble at the Metropolitan Abattoirs, it was ascertained that a great deal of slaughtering was being carried on at numerous unlicensed premises—in barns, sheds, and out in the open. Officers of the board found that the conditions generally speaking varied from shocking to poor. In nearly every case dogs were loose and had access to uncooked offal. There were large heaps of offal awaiting removal. In some cases the slaughtermen were working in an ankle-deep mixture of blood, slime and mud. Carcasses were being hung in the open and flies were numerous. In a few places slaughtering was being done on cement floors and some attempt made to clean-up after slaughtering. Various offences were found to have been committed such as slaughtering on unlicensed premises, dogs loose where slaughtering was being carried on and having access to uncooked offal, slaughtering premises not in accordance with the structural requirements of the Health Act and the business being conducted contrary to the requirements of the regulations.

The local boards concerned were urged to take action to safeguard the health of the community. They were informed that no slaughtering should be permitted in any premises, even if licensed, unless conditions were satisfactory. The Central Board advised immediate action to detect and deal with any of the breaches indicated or any other conditions likely to damage the public health. Subsequently seven charges were laid for offences in regard to premises being in such a state as to be offensive or permitting swine to be fed on offal which had not been first thoroughly cleansed and boiled. Convictions were obtained in all of the cases.

Kerosene Drinking by Children.—The Central Board of Health has been concerned at the increasing number of children accidentally drinking kerosene and similar liquids. Most of these cases are caused by parents, not sufficiently aware of the dangers, leaving kerosene within reach of children, particularly in containers normally used for food and drink.

The major oil companies were approached and agreed to incorporate a warning statement on the labels issued by them to storekeepers. A publicity campaign, with the object of impressing the danger on the parents was also conducted by the local press.

The Advisory Committee on Food and Drugs has recommended to the Government that consideration be given to the introduction of special legislation requiring kerosene and similar liquids to be packed in special type of containers and labelled with a warning statement when such liquids are sold for household use.

9. GENERAL SANITATION.

Inspections.—Routine inspections into conditions of general sanitation were carried out during the year by inspectors of the Central Board of Health. Medical officers of the Central Board of Health visited a number of country districts and discussed various aspects of public health and sanitation with members, secretaries, officers of health and health inspectors of the local boards of health. Special problems in local sanitation were dealt with, and many places were inspected where unusual insanitary conditions had been found to be present during previous routine sanitation inspections.

Hygiene at Swimming Pools.—Because adequate supervision in the operation of any swimming pool is of utmost importance and because of the fact that no uniform standard for hygiene, operation and maintenance of swimming pools had as yet been promulgated, the Central Board of Health suggested a suitable minimum standard for this State. It is along the lines of a standard adopted throughout the world.

A circular setting out particulars of the suggested standard was prepared and copies were sent to all local boards of health. They should assist local board officers in the technical side of supervising or operating a swimming pool.

The suggested standard requires a suitable scale of drinking, toilet and showering facilities, excludes infected persons from the pool, requires some lifesaving equipment and recommends chlorination of the water in the pool. A standard (0·5 parts per million) of chlorination is recommended and a method of adding sufficient chlorine to maintain this dosage is described. A simple and suitable method of checking the free chlorine (the B.D.H. Chlorotex outfit) is recommended. A standard for clarity for the water is set and a guide given as to how the growth of algae can be retarded. Adequate supervision, keeping of bathing load figures and a standard to adopt for changing the pool water are also recommended. The promulgation of this minimum code of hygiene at swimming pools provides local boards with a safe minimum standard to adopt for the usual drain-and-fill type of concrete pool constructed in South Australian country districts.

Mosquito Nuisance.—Following complaints concerning the mosquito nuisance at the Grange, an inspection of the area was made by Mr. D. C. Swan, entomologist at the Waite Agricultural Research Institute and Dr. G. H. McQueen, of the board's staff. Later a conference was held between representatives of the Central Board and local boards for Glenelg, Henley and Grange, Port Adelaide, and Woodville. The conference was of the opinion that drainage is the real and final answer to the area in question. It was resolved to ask the board to make a survey of the area. The survey was conducted over a period of 12 months by Inspector D. J. Wilson, under the supervision of Mr. D. C. Swan.

The area surveyed was approximately 8 sq. miles. This included 1½ sq. miles of swamp, most of which is in Woodville district. The vegetation in the swamp is mainly samphire weed. Mosquito larvae were first noted in April, 1948, 18 days after the first heavy rains for the year. Breeding was heavy throughout the winter months. After heavy rains the subsoil water appears to rise and, with the addition of surface rain water and sea water coming in with the tide, the swamp is maintained at a fairly constant level.

Mr. Swan concurred in the inspector's suggestion that the best solution of the problem lies in a long range policy of draining and filling of the swamp area and that in the meantime a programme of filling of the worst breeding areas, supported by D.D.T. spraying, would be desirable.

Copies of the reports were forwarded to the local boards concerned. The larger portion of the area was in the Woodville district and this formed part of the tidal basin scheme of the Harbors Board. A small area in the Henley and Grange district was outside this scheme, and it was suggested to the local board that it reclaim this portion.

Disposal of Refuse in Metropolitan Area.—In January, 1949, a survey was made of the disposal of refuse in the metropolitan area. It was revealed that approximately 757 tons of refuse is collected in 17 motor driven vehicles and 34 horse-drawn vehicles each week. Four hundred and thirty-three tons of refuse are disposed of by incineration, 93 tons by proper controlled tipping and 231 tons are dumped at depots which are kept under some control to prevent fly and rat breeding. At one depot used by two local boards it was considered that the method adopted was very unsatisfactory in disposing of refuse. It was recommended that the existing refuse be covered with clean filling and a system of controlled tipping then be instituted.

Insanitary Conditions on a Watershed Area.—A complaint concerning insanitary conditions at a piggery situated on a watershed area in a southern district was investigated by officers of this board and the Engineering and Water Supply Department. The report disclosed that approximately 500 pigs were kept under very adverse conditions on the top of a hill about 1 mile distant from a reservoir.

The pens were crudely erected, swampy and in an offensive condition. Large heaps of manure, filth and many dead piglets were near the pens. The pigs were allowed to roam over the whole area. The main food supplied to the pigs was horseflesh and whey from a nearby milk factory. The horses, which were kept on the area, were slaughtered as required near the pig pens.

A crude boiling-down device comprised two 44gall. drums cut lengthwise and laid on bricks. There was no evidence of any firing under the drums and each one contained maggot-infested horseflesh. There was no reticulated water supply, either for the use of the pigs or for cleaning purposes. Swarms of flies were attracted to the putrescible horseflesh and 39 dead piglets either in or about the pens. Numerous seagulls scavenging in and around the pens in their flight to the reservoir could be a source of contamination to the water therein.

The board viewed the matter seriously and authorized its officer to take legal proceedings against the offender. The court inflicted a fine and costs amounting to £4 11s. Subsequent inspections showed that the conditions were considerably improved. The Engineering and Water Supply Department has the matter under review for further action.

10. INDUSTRIAL HYGIENE.

Supervision.—In the Industrial Code, a factory is defined, briefly, as any premises, claypit, quarry, electricity-generating station or place where the occupier employes another person at manual labour. Every factory must be registered with the Factories and Steam Boilers Department and is subject to inspection by officers of that department. Under the Health Act every factory is also subject to inspection by officers of the Central Board of Health and the local board of health concerned.

During the year 1948-49 five deaths were attributed to silicosis and other occupational respiratory diseases. These were all in the over 60 age group. There is no precise information available regarding the incidence of sickness due to industrial causes, but a record of notified industrial accidents is included in the report of the Chief Inspector of Factories and Steam Boilers.

Liaison between officers of the Factories and Steam Boilers Department and the Central Board of Health continued during the year in regard to potential health hazards that may have been associated with a number of industrial processes.

Beryllium and its Compounds.—Recently in many parts of the world attention has been drawn to the toxic effect of beryllium. During the year in Great Britain beryllium poisoning was added to the list of prescribed industrial diseases for which compensation may be paid under the English National Insurance (Industrial Injuries) Act.

Beryllium is a light brittle metal. It is grouped with magnesium, calcium, and strontium in the periodic table and it has the appearance of stainless steel when it is polished.

It has varied uses. It is used in electrical and scientific instruments ; compounds of beryllium are used as phosphors in the coating of the internal surface of fluorescent lighting tubes ; and it is responsible for special properties in alloys.

The metal is obtained from natural ores containing beryl—a silicate of aluminium and beryllium. During the commonly used process of extraction, fluoride, oxyfluoride, hydroxide and oxide of beryllium are produced and the metal is finally obtained from the oxide.

The Effects of Beryllium.—Beryllium or its compounds may produce toxic effects if they are brought into contact with the skin or introduced into the body through the lungs or wounds in the skin. So far as is known, no one in South Australia has been affected by beryllium or its compounds. Previous medical reports show that damage to the lungs may occur in the form of acute or chronic pneumonia. Obstinate granulomatous ulcers of the skin have also occurred following cuts by glass coated with phosphors containing beryllium compounds—such as broken fluorescent tubes.

Precautions in the Use of Beryllium.—There are then two groups of people who may be exposed to the effects of beryllium :—

(*a*) Those working in industries in which beryllium or beryllium compounds are used in manufacturing processes.

(*b*) The general public who use fluorescent lighting tubes coated with phosphors containing beryllium compounds in the homes and places of employment.

There is no definite information available regarding either the safe atmospheric concentration of beryllium or its compounds or the reason why some people are more susceptible to the toxic effects of beryllium than others. Until this information is available precautions should be taken in manufacturing processes to avoid contact with either beryllium or beryllium compounds. There should be adequate general ventilation. All dust or fumes containing beryllium or beryllium compounds should be removed at the point of origin. Protective clothing, goggles, and gloves should be provided and used. Suitable individual respirators should be provided and used in the event of any breakdown in the ventilating system.

Anyone exposed to risk and showing symptoms of beryllium poisoning should be medically examined. It may be found advisable to have an annual X-ray examination of all those employed in manufacturing processes involving the use of beryllium and its compounds. Early evidence of the chronic pulmonary form of beryllium poisoning can be seen in an X-ray film of the lungs.

In fluorescent lighting there is no danger from the intact tube ; if one is broken, care should be taken to avoid—

(*a*) injuries from any broken fragments ; and

(*b*) inhaling any of the dust or fumes that may be produced.

In any injury, caused by the fragments of broken tube, any particles of dust or glass should be looked for and if found removed. If medical attention is necessary the doctor should be told that the injury was caused by a broken fluorescent tube.

There are many ways for safely disposing of broken tubes. The fragments can be moistened with water or covered with wet sawdust, carefully swept into a shovel, placed in a wet bag and buried. The worn-out intact tubes can be placed in a wet bag, submerged in water and then broken with a hammer. The bag and contents can then be buried. Under no circumstances should worn-out or broken tubes be placed in rubbish bins or left lying around in places where they may be handled by children, or adults who may be unaware of the risk involved.

The Public Service Commissioner issued a circular to Government departments concerning the hazards associated with broken or worn-out fluorescent light tubes. An article on beryllium was included in the "Health in Industry" issue of *Good Health*, October, 1949. It contained a description of the possible toxic effect and the precautions that should be taken.

Inspection of Factory using Beryllium Compounds.—In South Australia beryllium compounds have been used in the manufacture of fluorescent lighting tubes in one factory for about 10 years. An inspection of this factory and the employees working there was made during the year. Beryllium oxide and beryllium hydroxide have been used by this firm in the manufacture of phosphors, but zinc-manganese-beryllium-silicate is the only beryllium-containing phosphor used now. This compound is imported from America.

The dry compounds are mixed with a liquid cellulose compound by a qualified chemist in a small laboratory. The laboratory and a number of fume chambers in it are ventilated by an efficient exhaust system.

The tubes are automatieally coated with this liquid cellulose phosphor mixture in an exhausted enclosure. They are then baked in enclosed ovens in the main factory. Before the terminals are sealed in, about $1\frac{1}{2}$in. of the dry coating is removed with a dry rag from each end of the dry tube. A number of the employees with a history of having cut themselves while working with the coated glass were examined and no evidenee of any beryllium granulomata was found. The factory is well lighted and ventilated and the "housekeeping" is good.

It was suggested that small pieces of lint be used to clean the dried phosphor from the ends of the tubes and discarded after being used once. This appeared to be the only point at which a dust hazard may arise in this factory. Arrangements were made to have those working in the factory X-rayed on large films at the Royal Adelaide Hospital. Twelve were examined and there was no evidence of the effects of beryllium in their X-ray plates.

Other Industrial Hygiene Problems.—During the year shortages of materials introduced a number of problems into industry. Steel sheets usually used in the manufacture of eabinets were not obtainable, and sheets coated with zinc anneal were used instead. It was necessary to remove this coating from areas which were to be welded. When this was done by buffing machines a fine dust was produced. On investigation it was found that the air breathed by the operator contained about 10,000,000 particles of dust per cub. ft. and 60 per cent of these particles were less than 5 microns in size. On analysis the dust contained zinc and 0·3 per cent lead. It had an irritating effect on the mueous membrane of the nose and throat, and it produced small ulcers in the nostrils of some of the operators. As far as could be ascertained no general symptoms were produced.

It was considered that zinc and lead particles would penetrate into the respiratory tract and be absorbed. Zinc in this form would not produce toxic symptoms and further investigations would be necessary to ascertain whether sufficient lead was being absorbed to produce poisoning. However, it was considered that the dust would have a harmful effect on the epithelial lining of the respiratory system. It was recommended that action be taken to prevent the inhalation of this dust by the operators. Suitable steps were taken by the firm concerned.

In the manufacture of motor vehicle bodies a substance which contains 80 per cent of lead is used to fill any depressions in the surface of the body resulting from the junction of the component panels. The question arose of a possible hazard in the use of this substance. Owing to the conditions of work, it was impracticable to estimate the amount of lead being absorbed by the operators by an examination of the lead content of the air and size of the lead particles. Samples of blood from 10 workmen exposed to this possible hazard were examined. One showed evidence of lead

absorption. This investigation is still proceeding but at present the available evidence indicates that the precautions taken are sufficient. The prohibiting of the mechanical grinding and buffing of any surfaces on which the filler substance has been placed is the main precaution taken.

Aluminium in the Prevention and Treatment of Silicosis.—Dr. G. H. McQueen, Senior Medical Officer of the Central Board staff, attended a lecture and demonstration in Melbourne by Dr. W. D. Robson, Medical Director of McIntyre Research Limited, Canada, on the use of aluminium in the prevention and treatment of silicosis. Dr. Robson produced evidence to show that in the case of animals the inhalation of aluminium powder prevents or delays the onset of silicosis, but no conclusive evidence was produced to show that it has the same effect in humans. A film produced by the Department of Mines in the Province of British Columbia, Canada, was shown to illustrate methods of dust control in Canadian mines. These were—

(*a*) good ventilation. Air currents were indicated by a smoke tube ;

(*b*) the use of water in drilling and handling ore to suppress dust and the use of a konimeter to check the result of these procedures ; and

(*c*) the lapse of sufficient time following any dust-producing procedure, to allow the dust to settle.

Committee on Industrial Hygiene.—During the year Dr. McQueen attended two meetings of the Subcommittee on Industrial Hygiene of the National Health and Medical Research Council. These were held at the Commonwealth X-ray and Radium Laboratory, University Grounds, Carlton, Victoria. This committee consists of representatives from four State health departments, two physicists, a representative from the Commonwealth Health Department, an industrial medical officer and the medical officer in charge of the Industrial Health Unit at the School of Public Health and Tropical Medicine at the University of Sydney. Subjects of interest in industrial hygiene are discussed. At these meetings, any proposed legislation relating to industrial hygiene is considered with a view to uniformity throughout Australia. The committee makes recommendations to the National Health and Medical Research Council and to the health departments represented on the committee.

Industrial Health Publicity.—The October issue of *Good Health* was devoted to health in industry. Interstate and local medical experts and other qualified experts contributed articles. The editing was done by Dr. H. F. Hustler, of the Central Board of Health staff. Arrangements were made for a wider distribution than usual. Copies were sent to the heads of manufacturing firms and members of their staffs concerned with the health and welfare of employees.

X-ray Health Survey in Industry.—Towards the end of the year a second portable photofluorscopic X-ray apparatus was purchased by the Government. This will enable X-ray health surveys of those employed in industrial establishments and similar undertakings in the metropolitan area to be conducted.

The staff and X-ray apparatus of this unit will work in a room in the factory or in some building on or near the site of the undertaking. By doing this the time lost by the employees in being X-rayed should be reduced to a minimum. With the co-operation of managements and employees it is hoped that a high percentage of those employed in industry in the metropolitan area will be X-rayed.

11. HEALTH EDUCATION.

" *Good Health.*"—One of the main functions of a central health authority is the collection and distribution of information regarding the maintenance of the public health and the prevention of disease.

For nearly 20 years the Central Board of Health has published its quarterly bulletin now under the title *Good Health.* It is distributed to all members and officers of local boards of health. In addition, medical practitioners, pharmacists, school teachers, social workers, university students, are among many others who are on the *Good Health* mailing list. Dr. H. F. Hustler edits the material collected for publication.

The Central Board of Health is very grateful to those people interested in the many facets of public health who have contributed valuable articles during the year for *Good Health.*

Articles were contributed by the Minister of Health, Drs. Hubert Davis, Charles Hill, W. E. George, John Gowland, D. Shiels, J. S. Sleeman, Messrs. F. V. Collins, B.V.Sc., H. C. Dridan, G. R. Edwards, B.Ag.Sc., A. G. Gibbs, J. H. Hounslow, J. H. S. Leahey, W. H. Owen and H. Womersley, F.E.S., officers of the Commonwealth Department of Post-War Reconstruction, officers of the Factories and Steam Boilers Department and officers of the Central Board of Health.

The first two issues contained articles and information relating to public health and developments in public health in South Australia and other parts of the world. The third issue was a special illustrated 40 page publication dealing with health in industry. The Christmas issue was brought out with a striking new cover, with a new design in black, white, and red.

Under the heading of " How to do it " a series of articles is appearing in *Good Health.* Each deals with a problem that frequently occurs in the day-to-day administration of a local health authority.

Medical Officers' News-letter.—For some time it has been felt that there is a tendency for local medical officers of health to become " out of touch " with developments in health work. It was decided that a monthly news-letter to each local medical officer of health may assist in the solution of this problem.

Five letters were sent out during the year. They were restricted to one typewritten page of foolscap and each referred to a number of topical subjects. One letter was a brief description of methods of preventing the spread of poliomyelitis in the light of recently acquired knowledge regarding the virus. In another letter a brief description was given of the use of B.C.G. vaccine. Reports received indicate that medical officers find these news-letters are interesting and helpful in their work.

Central Board of Health Circulars.—Circulars dealing with a number of subjects were issued during the year by the Central Board of Health to local boards of health. These referred to the conduct of slaughtering in country areas during the strike of employees at the Metropolitan Abattoirs, the use of whooping cough vaccine, approved methods of washing drinking glasses, smallpox precautions, standards for wholemeal bread and brown bread, hygiene of swim-

ming pools, transport of meat, and chocolate coated ice cream. Two circulars were sent to pharmaceutical chemists, one regarding repeat medicines and one dealing with altered standards for drugs in the British Pharmacopoeia, 1948. A circular was also sent to the principals of private schools amplifying the poliomyelitis precautions recommended by the Advisory Committee on Poliomyelitis.

12. OUTSTANDING FEATURES.

There are many items of importance in South Australia's public health for 1949. Some aspects are encouraging; they show progress in the battle for health. Other features emphasize the difficulties that still confront us.

Poliomyelitis still presents problems. The year closed with this State in the midst of its largest poliomyelitis epidemic. Medical science still has to discover the effective means for controlling this troublesome disease. There is already a very great deal of valuable knowledge of the infection and its effects—but many dark corners remain. Until more is known about poliomyelitis, its satisfactory control is impracticable.

Diphtheria is still low on the list of trouble-causing infections, yet 38 cases, with one death, must still be considered too many. "Keep on Immunizing" is the wise plan to follow.

Whooping cough and measles gave trouble in the two years 1948-49; for that period 2,683 whooping cough cases were reported, with 26 deaths, and 15,118 measles cases, with 13 deaths. The use of whooping cough vaccine as an immunizing agent, though less effective than diphtheria immunization in its field, may help towards better control of the distressing and often serious illness. Against measles, pooled serum or gamma globulin may be used in special circumstances.

Typhoid fever has caused little trouble in recent years. Better sanitation has accounted for that. It is good to know that the antibiotic substance chloromycetin (chloramphenicol) is effective in the treatment of typhoid fever, speedily cutting short the illness in most cases.

Tuberculosis still causes far more deaths than all other notifiable diseases combined. However, the continued fall in case reports and deaths gives some hope for still further gains. Certainly there has been a dramatic fall in the tuberculosis deathrate; it is now about one-quarter of the rate 50 years ago. Better case-finding methods, especially by mass X-ray surveys, and new lines of treatment are proving valuable in attacking the illness.

Yet the infectious diseases, even including tuberculosis, are responsible for comparatively few deaths each year. In 1949, of the total of 6,373 deaths in South Australia, tuberculosis (all forms) caused 144, poliomyelitis 20, whooping cough 20, and all other notifiable infectious diseases 16. The big numbers were shown, of course, for diseases especially affecting elderly people; diseases of the heart 1,971, cancer 838, and cerebral haemorrhage 820. There were 64 suicides recorded and 375 other violent deaths.

Methods for maintaining good sanitation are now practically standardized. There is little excuse for neglecting the well-recognized and accepted principles of hygienic living. Health inspectors, in their day-to-day work, are a valuable educative influence. People are coming to adopt cleanly methods, not just because the law says they should, but because they realize the value of "playing safe."

Food matters require the constant attention of health authorities. The year under review has shown no serious troubles, but such items as dirty food premises, unsatisfactory slaughtering conditions and ill-conducted dairies still call for improvement.

The board's officers are devoting more time and effort to industrial hygiene problems. New hazards continue to present themselves. Beryllium poisoning is one of the latest; its main features are discussed in section 10 of this report.

The Health and Medical Services Act of 1949 is a distinct highlight. The Advisory Council on Health and Medical Services has been established. It replaces the advisory committee of similar name which was set up by the Government in 1943. The new council's task is to investigate and co-ordinate all matters relating to the State's health and medical services, and to advise the Government thereon.

The board again records its appreciation of the help it has received from many groups and persons. Local boards generally have co-operated well in the routine tasks. Officers of the Commonwealth Health Department, the health departments of sister States, and the various departments of our State Government have all given ready aid on the many occasions it has been sought by the Central Board or its officers. Nor must the help of health authorities overseas escape acknowledgment; the British Ministry of Health, the London County Council's Medical Branch, the United States Health Service, and the World Health Organization—through their publications and through letters from their officers—have inspired much of our work.

So has passed another year. There has been some progress. If it seems too slow, perhaps that is because of the contrast with the very great gains in earlier years. As more and more of the difficulties are surmounted, so less remain—and the rate of progress inevitably slows down. That, of course, is not the whole story in public health, for new problems arise. Disease is no fixed and final affair. It is dynamic and variable, and its mode of attack calls for mobility and agility in the combat against it. Certainly workers in the public health field need mobile and agile minds and bodies if their efforts are to be successful.

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J. B. CLELAND,
A. R. BURNELL,
F. C. LLOYD,
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H. T. HUTCHINS, Secretary,

Adelaide, July, 1950.